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| 09/633,336      | 08/04/2000  | Hiroshi Ueda         | Q60276              | 2028             |

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EXAMINER

MAKI, STEVEN D

ART UNIT

PAPER NUMBER

1733

DATE MAILED: 04/29/2003

15

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Applicati n No.

09/633,336

Applicant(s)

UEDA ET AL.

Examiner

Steven D. Maki

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 March 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6, 8-17 and 19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-17 and 19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

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1) A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3-14-03 has been entered.

2) The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3) Claims 1-6, 8-17 and 19 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In claims 1 and 17, the subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention (i.e. the new matter) is the carved groove having a shape that is different from the shape of the lug groove rib. The original disclosure fails to describe the carved groove as having a shape that is different from the shape of the lug groove rib. It is understood that the lug groove rib defines the shape of the lug groove. However, the original disclosure fails to define different groove shapes. Figure 6 illustrates a specific cross section of the carved groove and a specific cross section of the lug groove. Page

11 of the original disclosure describes the lug groove 9 as overlapping the triangular carved groove 8 but fails to characterize these two shapes as being different.

In claim 1, the subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention (i.e. the new matter) is the limitation of "said triangular shape preventing interference and pressing of the lug groove ribs with and against the tread surface of the green tire ... when the green tire is being introduced into the mold". The original disclosure describes the pressing force by the lug groove rib as being small (page 5) instead of describing *preventing* pressing of the lug groove ribs with and against the tread surface of the green tire. The original disclosure describes that the upper and lower molds can be opened smoothly without interference with the tread rubber but fails to describe the triangular shape as preventing interference *when the green tire is being introduced into the mold*.

4) The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5) Claims 1-6, 8-17 and 19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 1 and 17, the scope and meaning of the carved groove having a shape "that is different from the shape of the lug groove rib" (emphasis added) is unclear; it

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being noted that the original disclosure fails to provide guidance as to the scope of "different shapes".

6) The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7) **Claims 1, 7-8, 10-12 and 19 are under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al (US 4,682,641) in view of Verdier (US 3,457,981) and optionally Sipe (US 2,245,728).**

Watanabe et al, directed to using carved grooves to eliminate the problem of belt wave (col. 1 lines 21-27 and col.2 lines 1-5), discloses a process for manufacturing high lug pneumatic tires comprising providing an unvulcanized tire (green tire) made by successively winding a carcass ply, a belt ply, and a tread rubber on a drum (col. 1 lines 6-17, col. 2 lines 50-52), moving cutters 83, 84 along a predetermined path to cut off (carve) a portion of the tread rubber of the unvulcanized tire 5 to thereby form a quasi pattern of grooves 86 which are substantially complementary to the shaping surface of a vulcanizing mold to be used in a next tire manufacturing process (col. 4 line 64 to col. 5 line 2); and vulcanizing the tire with the shaping surface of the vulcanizing mold matching the quasi pattern of grooves 86 on the tire (col. 6 lines 52-55). As acknowledged by applicant on page 5 of the response filed 8-19-02, "This means that the grooves 86 in the tread surface of the green tire 5 are given a shape complementary to the lug groove ribs that form the shaping surface of the vulcanizing mold." At col. 6

lines 55-61, Watanabe et al explains the benefit of this process as follows: "Since the shaping surface and the quasi pattern of grooves 86 are substantially complementary to each other, any flow of the rubber as it is vulcanized is small. This eliminates any tendency to form recesses in the inner side of the lugs upon the flow of the rubber into the grooves of the mold" (emphasis added). Hence, Watanabe et al substantially discloses the claimed process.

As to claim 1, it would have been obvious to **shape** the carved grooves such that each of the carved grooves has a "substantially triangular shape" since:

(a) Watanabe et al teaches cutting (carving) the tread so that the **shape of the carved grooves is substantially complementary to the shape of the lug grooves**,

(b) Verdier teaches shaping lug grooves so that each lug groove has a **V-shape (a triangular shape)** so as to avoid retention of stones and facilitate their ejection and optionally

(c) Sipe's teaching to cut (carve grooves) so as to form a **V-shaped groove (triangular shaped groove)** – Sipe specifically teaching using two knives to cut a single groove so that V-shaped groove is formed (page 1 lines 11-17, page 1 line 51 to page 2 line 5).

Hence, Verdier illustrates a triangular cross section for groove in figure 4. This triangular cross section is for a groove of a completed tire. The cross sectional shape of a groove of a completed tire is relevant to Watanabe et al since Watanabe et al teaches that the shape of carved grooves before vulcanization is substantially complementary to (in contrast to has nothing to do with) the shape of the grooves of the completed tire.

Furthermore, it would have been obvious to form the carved grooves such that they gradually widen from a tread center side to a tread end and consequently the lug grooves gradually widen from a tread center side to a tread end in view of Verdier's suggestion to configure lug grooves such that they gradually widen from a tread center side to a tread end.

As to the carved grooves extending in substantially the same direction as the lug grooves, note the above described process of Watanabe et al. In any event, it would have been obvious to carve the unvulcanized tire of Watanabe et al such that the carved grooves are "at positions on a surface of the unvulcanized tire corresponding to the lug grooves such that the carved grooves extend in substantially the same direction as the lug grooves" (emphasis added) since Watanabe et al teaches cutting (carving) a quasi pattern of grooves 86 which are substantially complementary to the shaping surface of a vulcanizing mold which is used to vulcanize a tire having high lugs and deep lug grooves so that any flow of the rubber as it is vulcanized is small to thereby eliminate any tendency to form recesses in the inner side of the lugs upon the flow of the rubber into the grooves of the mold.

The limitation of the carved grooves having a shape "that is different from the shape of said lug groove ribs" is suggested by Watanabe et al's disclosure that "[t]he quasi pattern of grooves 86 are substantially complementary to the shaping surface of the vulcanizing mold in which to vulcanize the tire 5 in a next tire manufacturing process. However, the quasi pattern of grooves 86 differ from the specific details of the shaping surface of the vulcanizing mold" (emphasis added / col. 6 lines 43-48). As

can be seen from the above disclosure at column 6, Watanabe et al suggests a carved groove having a substantially complementary shape to (but not exactly the same shape as) the lug groove rib.

In claim 1, the description of the triangular shape preventing interference, preventing pressing and ensuring smooth insertion fails to require methodology not suggested by the above applied prior art. For example, the description of the triangular shape preventing interference, preventing pressing and ensuring smooth insertion fails to require a triangular shape different from that suggested by Verdier; it being emphasized that the groove cross section shown by Verdier is more triangular than that shown by applicant.

As to claims 8 and 19, it would have been obvious to carry out the carving twice using a cutter in view of Sipe's suggestion to cut (carve) a single groove using a plurality of cutters (knives) to reduce resistance of the rubber to the cutting edge.

As to claims 10-12, the limitations of the volume of the carved groove being 0.4-1.2 times the volume of the lug groove (claim 10), 0.7-1.0 times the volume of the lug groove (claim 11) or 0.5-0.9 times the volume of the lug groove (claim 12) would have been obvious in view of the above noted suggestion from Watanabe et al to form the carved grooves such that they are substantially complementary to the lug grooves; it being noted that Watanabe et al states "Since the shaping surface and the quasi pattern of grooves 86 are substantially complementary to each other, any flow of the rubber as it is vulcanized is small". This eliminates any tendency to form recesses in the inner side of the lugs upon the flow of the rubber into the grooves of the mold" (emphasis added).



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8) **Claims 2-6 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al (US 4,682,641) in view of Verdier (US 3,457,981) and optionally Sipe (US 2,245,728) as applied above and further in view of Clayton (US 4,237,955).**

As to claims 2-6 and 9, the limitations therein regarding the configuration of the carved grooves and consequently the configuration of the lug grooves would have been obvious in view of (a) Watanabe et al's teaching to form lug grooves from the carved grooves and (b) the various lug grooves shown by Clayton on drawing sheet #8.

9) **Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al (US 4,682,641) in view of Verdier (US 3,457,981) and optionally Sipe (US 2,245,728) as applied above and further in view of Sato et al (US 5404925) or Roger (US 4194548).**

As to claims 13-14, it would have been obvious to use a belt member having a relatively low expansion rate (claim 13) such as 3% or less (claim 14) as the belt ply in Watanabe et al since a belt having a relatively low expansion rate such as 3% or less for a pneumatic tire is well known / conventional per se in the tire art as evidenced by Sato et al (col. 4 lines 27-36, especially lines 29-30) or Roger (col. 2 lines 1-32, especially lines 19-20 and 25-27).

10) **Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al (US 4,682,641) in view of Verdier (US 3,457,981) and optionally Sipe (US 2,245,728) as applied above and further in view of Great Britain '891 (GB 1248891), Japan '509 (JP 4-28509) or Japan '711 (JP 61-3711).**

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As to claims 15 and 16, it would have been obvious to use the claimed full mold vulcanization molding machine having upper mold and lower mold in view of (a) Watanabe et al teaching to use a vulcanization mold and (b) the upper mold and lower mold containing "full mold" vulcanization mold apparatus shown by Great Britain '891, Japan '509 or Japan '711.

**11) Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al (US 4682641).**

Watanabe et al is discussed above. As to the carved grooves extending in substantially the same direction as the lug grooves, note the above described process of Watanabe et al. In any event, it would have been obvious to carve the unvulcanized tire of Watanabe et al such that the carved grooves are "at positions on a surface of the unvulcanized tire corresponding to the lug grooves such that the carved grooves extend in substantially the same direction as the lug grooves" (emphasis added) since Watanabe et al teaches cutting (carving) a quasi pattern of grooves 86 which are substantially complementary to the shaping surface of a vulcanizing mold which is used to vulcanize a tire having high lugs and deep lug grooves so that any flow of the rubber as it is vulcanized is small to thereby eliminate any tendency to form recesses in the inner side of the lugs upon the flow of the rubber into the grooves of the mold. As to claim 17, it would have been obvious to form the unvulcanized tread rubber, which is wound on a belt ply (belt member) and a carcass (ply), by extrusion since it is taken as well known / conventional per se in the tire making art to successively wind a carcass ply, belt ply and tread on a drum wherein the tread (a sheet of rubber) is formed by

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extrusion. It is noted that applicant has not challenged the official notice of "well known / conventional per se in the tire making art to successively wind a carcass ply, belt ply and tread on a drum wherein the tread is formed by extrusion". In particular, applicant has failed to assert novelty per se for "successively winding a carcass ply, belt ply and tread on a drum wherein the tread is formed by extrusion". These steps are used to form a tire. The suggestion to form a tire comes not from the official notice but from Watanabe et al's teaching to form a tire.

#### Remarks

12) Applicant's arguments with respect to claims 1-6, 8-17 and 19 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's arguments filed 3-14-03 have been fully considered but they are not persuasive.

13) No claim is allowed.

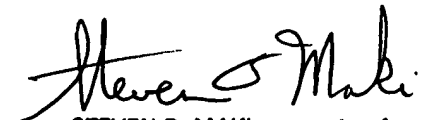
14) Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven D. Maki whose telephone number is 703-308-2068. The examiner can normally be reached on Mon. - Fri. 7:30 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Ball can be reached on (703) 308-2058. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Steven D. Maki  
April 26, 2003

  
STEVEN D. MAKI  
PRIMARY EXAMINER  
~~GROUP 1300~~  
AU 1733 4-26-03